

Claims

What is claimed is:

1. In a SFN cellular broadcast system, means for implementing a bidirectional personalized channel with subscribers, comprising:
 - A. means for allocating a first group of subcarriers to the broadcast transmission and a second group of subcarriers to the personalized channels;
 - B. means for reducing interference in the broadcast channel using equalizer means; and
 - C. means for reducing interference in the personalized channel using a controlled allocation of subcarriers in the second group to each subscriber.
2. The SFN cellular broadcast system according to claim 1, wherein said system uses OFDM modulation means.
3. The SFN cellular broadcast system according to claim 1, wherein said controlled allocation of subcarriers in the second group comprises the allocation of separate subcarriers to each of the subscriber units that are close to each other.
4. The SFN cellular broadcast system according to claim 1, wherein said controlled allocation of subcarriers in the second group comprises a measure of overlap in the allocation of subcarriers to each of the subscriber units that are close to each other.
5. The SFN cellular broadcast system according to claim 1, wherein said controlled allocation of subcarriers in the second group comprises the allocation of separate subcarriers to each of the subscriber units that are close to each other.
6. The SFN cellular broadcast system according to claim 1, wherein said controlled allocation of subcarriers in the second group comprises a measure of overlap in the allocation of subcarriers to each of the subscriber units that are close to each other.

7. The SFN cellular broadcast system according to claim 1, wherein said interference reducing means further include multipath cancellation means.

8. In a broadcast SFN system using OFDM transmission from a base station to subscriber units, means for achieving a bi-directional channel comprising transmitting means in the subscriber units for a transmission of signals orthogonal to the signals transmitted from the base station, and receiving means in the base station for receiving the orthogonal signals.

9. The broadcast SFN system according to claim 8, further including means in the base station for separate processing of the transmit broadcast data and the transmit personalized data in the frequency domain, and means for combining the broadcast and personalized data in the frequency domain, prior to conversion to the time domain for transmission.

10. The broadcast SFN system according to claim 8, further including means in the subscriber unit for converting the received signals to the frequency domain, means for separating the broadcast data and the personalized data in the frequency domain, and means for separate processing of the broadcast data and the personalized data in the frequency domain.

11. The broadcast SFN system according to claim 8, further including means in the base station for transmitting personalized data to each subscriber, comprising means for a transmission of signals orthogonal to the broadcast signals and to the signals transmitted from the subscriber units.

12. The broadcast SFN system according to claim 8, wherein the transmitting means further includes a personalized data channel which is inserted after the OFDM interleaver stages and in the frequency domain.

13. The broadcast SFN system according to claim 8, wherein the transmitting means further includes means for a dynamic allocation of subcarriers to the personalized information.

14. The broadcast SFN system according to claim 8, wherein the transmitting means in the base station further includes means for separate processing of the transmit broadcast data and the transmit personalized data in the frequency domain.

15. The broadcast SFN system according to claim 14, further including means for combining the processed transmit broadcast data and transmit personalized data, and means for converting the resulting signal to the time domain prior to its transmission.

16. The broadcast SFN system according to claim 8, further including means for reducing interference related to the common (broadcast) data from other base stations, comprising equalizer methods or means.

17. The broadcast SFN system according to claim 16, wherein the means for reducing interference related to the common (broadcast) data from other base stations, comprise a transversal filter.

18. The broadcast SFN system according to claim 8, further including means for reducing interference related to the personalized data from other base stations, comprising the allocation of basically different subcarriers in each base station.